

REMARKS

The Examiner has rejected claims 1, 4-6, and 17 under 35 U.S.C. §102(b) as anticipated by Mazur et al. (6,408,616).

In order to further define and more particularly claim their invention, Applicants have amended Claims 1 and 17. Amended Claim 1 claims:

1. A diagnostic method, comprising:  
estimating a temperature of a NOx-reducing catalyst based on a thermodynamic model of said NOx-reducing catalyst, wherein said model inputs comprise at least an amount of hydrocarbon stored in said catalyst;  
estimating a hydrocarbon conversion efficiency of said NOx-reducing catalyst based on said temperature estimate; and  
estimating a parameter indicative of an age of said NOx-reducing catalyst based on said estimated hydrocarbon conversion efficiency of said catalyst.

As stated in the Background and Summary of the present patent application, Applicants have recognized that in order to create an accurate thermal model of a NOx reducing catalyst, it is essential to account for an amount of hydrocarbon stored in the catalyst. In other words, Applicants have recognized that catalyst temperature can be affected when hydrocarbons stored in the catalyst are released from their storage sites and combust. Therefore, Applicants' claimed solution in Claim 1 is to account for hydrocarbon storage and release mechanisms when estimating a catalyst temperature.

Accordingly, Applicants respectfully submit that the Mazur reference cited by the Examiner does not teach all of the claimed limitations of the present invention. Mazur does discuss a catalyst model using HC conversion as a function of catalyst temperature, as well as catalyst inlet temperature and feedgas emission data to generate predicted tailpipe emission levels (see Column 3, lines 10-35).

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Applicants, on the other hand, teach a temperature model of a NOx-reducing catalyst, wherein model inputs include at least an amount of hydrocarbon stored in the catalyst. Applicants can find no teaching or even mention anywhere in Mazur of accounting for hydrocarbon storage and release behavior when estimating catalyst temperature.

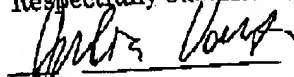
Therefore, Applicants respectfully submit that amended Claim 1 is not anticipated by Mazur, and allowance is respectfully requested. Applicants further submit that Claims 2, and 4-6 depend from allowable Claim 1 and should therefore be allowed.

In the interests of brevity, Applicants comments with respect to Claim 1 are fully applicable to Claim 17, and allowance of Claim 17 is therefore respectfully requested.

No other art is cited in the Office Action. Based on the foregoing comments, the above-identified application is believed to be in condition for allowance, and such allowance is courteously solicited. If any further amendment is necessary to advance prosecution and place this case in allowable condition, the Examiner is courteously requested to contact the undersigned by fax or telephone at the number listed below.

Please charge any cost incurred in the filing of this Amendment, along with any other costs, to Deposit Account 06-1510. If there are insufficient funds in this account, please charge the fees to Deposit Account No.06-1605.

Respectfully submitted,

  
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